22. The OLED structure of claim 21, wherein said second composite layer stack comprises two or more second planarizing layers and two or more second high-density layers.

23. The OLED structure of claim 10, wherein said first composite layer stack comprises an alternating series of two or more first planarizing layers and two or more first high-density layers.

24. The OLED structure of claim 23, wherein said second composite layer stack comprises an alternating series of two or more second planarizing layers and two or more second high-density layers.

25. The OLED structure of claim 10, wherein said first barrier region further comprises a third composite layer stack attached to said second composite layer stack, said third composite layer stack comprising a third polymer substrate layer, a third planarizing layer and a third high-density layer.

26. The OLED structure of claim 10, wherein said first planarizing layer and said second planarizing layer comprise a material selected from fluorinated polymers, parylenes, cyclotenes and polyacrylates.

27. The OLED structure of claim 10, wherein said first high-density layer and said second high-density layer comprise a material selected from metal oxides, metal nitrides, metal carbides and metal oxynitrides.

28. The OLED structure of claim 10, wherein said first high-density layer and said second high-density layer comprise a material selected from silicon oxide, silicon nitride, aluminum oxide, indium tin oxide and zinc indium tin oxide.

29. The OLED structure of claim 10, wherein said first and second polymer substrate layers comprise a material selected from a fluorocarbon polymer, a polyethersulphone, a polyimide, a polyolefin, and a polyester.

30. The OLED structure of claim 29, wherein said first polymer substrate layer comprises a polyolefin and said second polymer substrate layer comprises a polyester.

31. The OLED structure of claim 30, wherein said first polymer substrate layer comprises a cyclic olefin copolymer and said second polymer substrate layer comprises a polyethylene terephthalate.

32. A method of forming an organic optoelectronic device structure comprising:

providing a first composite layer stack, said first composite layer stack comprising a first polymer substrate layer, a first planarizing layer and a first high-density layer,

providing a second composite layer stack, said second composite layer stack comprising a second polymer substrate layer, a second planarizing layer and a second high-density layer;

attaching said first composite layer stack to said second composite layer stack to form a first barrier region;

providing an organic optoelectronic device selected from an organic light emitting diode, an organic electrochromic display, an organic photovoltaic device and an organic thin film transistor; and

disposing said organic optoelectronic device between said first barrier region and an additional barrier region, such that said additional barrier region cooperates with said first barrier region to restrict transmission of water and oxygen to said optoelectronic device from an outer environment.

33. The method of claim 32, wherein said first and second polymer substrate layers are of the same material composition.

34. The method of claim 32, wherein said first and second polymer substrate layers are of different material compositions.

35. The method of claim 32, wherein said first composite stack and said second composite stack are attached to one another via one of said first and second planarizing layers.

36. The method of claim 32, wherein said first composite stack and said second composite stack are attached to one another via an adhesive layer.

37. The method of claim 32, wherein said first composite layer stack is attached to said second composite layer stack such that said first planarizing layer, said first high-density layer, said second planarizing layer and said second high-density layer are all disposed between said first and second polymer substrate layers.

38. The method of claim 32, wherein (i) said first planarizing layer and said first high-density layer are disposed over said first polymer substrate layer, (ii) said second polymer substrate layer is disposed over said first planarizing layer and said first high-density layer, and (iii) said second planarizing layer and said second high-density layer are disposed over said second polymer substrate layer.

39. The method of claim 32, wherein said first composite layer stack, said second composite layer stack, or both said first and second composite layer stacks comprise two or more planarizing layers and two or more high-density layers.

40. The method of claim 32, wherein said first composite layer stack, said second composite layer stack or both said first and second composite layer stacks comprise an alternating series of two or more planarizing layers and two or more high-density layers.

41. The method of claim 32, wherein said organic optoelectronic device is an OLED.

42. The method of claim 32,

wherein said first composite layer stack is provided by a method comprising: providing said first polymer substrate layer, and depositing said first planarizing layer and said first high-density layer over said first polymer substrate, and

wherein said second composite layer stack is provided by a method comprising: providing said second polymer substrate layer, and depositing said second planarizing layer and said second high-density layer over said second polymer substrate layer.

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